Occupational Outlook Quarterly

IN THIS ISSUE:

- Some Facts About Unemployment Insurance
- Part-Time Job Opportunities for Women
- Employment Outlook for Dental Laboratory Technicians

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UNITED STATES DEPARTMENT OF LABOR
BUREAU OF LABOR STATISTICS
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Occupational Outlook Quarterly

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This publication is issued to provide counselors with current information on employment trends and career opportunity as the continuous research and statistical programs of the Bureau of Labor Statistics are expanded and brought up to date information in the Occupational Outlook Handbook. It is prepared with the advice and assistance of the

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SOME FACTS ABOUT UNEMPLOYMENT INSURANCE*

by Margaret M. Dahm
Bureau of Employment Security

The 1957-58 recession aroused a great deal of interest in unemployment insurance. Letters received by the U. S. Department of Labor during this period indicated that high school boys and girls were concerned about the problems faced by unemployed workers. Many young people requested information about unemployment insurance--how it works, who is covered, the amount of benefits, and so forth. This article is intended to provide the information young people need for a basic understanding of the Federal-State unemployment insurance program.

The Problem of Unemployment

Unemployment comes from many causes. Probably the best known type of unemployment is "cyclical" unemployment, which occurs in periods of moderate "recession" in business activity or of more severe "depression." "Frictional" unemployment occurs when individuals quit work voluntarily, sometimes to move to another area or to look for a better job. The development of new products or of new methods of producing old products--for example, the shift to synthetic fabrics and the large-scale use of automatic machinery--sometimes causes "technological" unemployment. "Seasonal" unemployment occurs in various months of the year in industries affected directly or indirectly by seasonal factors, such as weather conditions (important in construction, farming, canneries, clothing factories, and so forth), or holidays and vacation periods (affecting retail stores and resort hotels, for example). In addition, workers may have periods of unemployment for a variety of other reasons, such as a company's decision to move a plant to another part of the country, or a temporary plant shutdown because of a flood or hurricane or shortage of raw materials.

Regardless of the cause, when a worker loses his job, he loses the earnings that have bought food, housing, and other consumer goods for himself and his family. Because he buys less, those who sell to him do less business and, in turn, need fewer workers. This spiral of unemployment can be a serious threat not only to the individual, but also to the community and to the Nation.

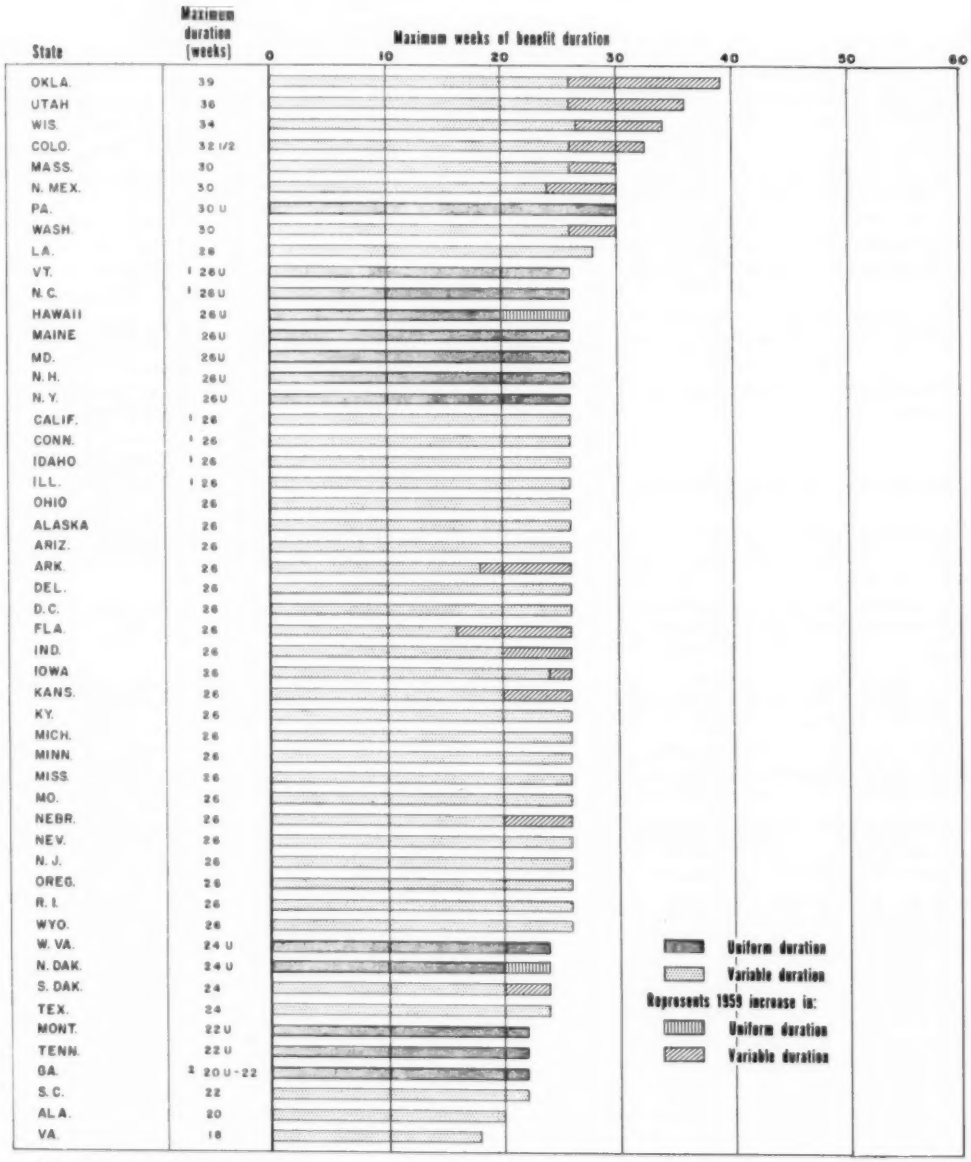
Function of Unemployment Insurance

Unemployment insurance serves to ease the situation, for both the worker and the community. It does this through a system of short-term insurance which provides the worker with an income during periods of unemployment. Under the current program, employers pay premiums, based on the wages of their employees, to purchase protection for these employees against possible loss of income through unemployment. About 43 million workers are now covered by the Federal-State unemployment insurance program, although the number receiving payments at any particular time is relatively small.

Unemployment benefits are paid to covered workers who are able and willing to work but cannot find jobs and who meet other conditions prescribed by law. The amount of benefits and period of time for which they may be paid are also determined by formulas and limits prescribed by law.

*Editor's Note: Although Occupational Outlook studies give the young person the facts about particular occupations that can help him to choose a career wisely, he also needs to know something about the broad social setting in which all work is done. This is one of a series of articles designed to give students and counselors a better understanding of the institutional background of the world of work.

Chart 1. Legal Maximum Weeks of Benefit Duration, By State, October 1959



[1] EXTENDED DURATION WHEN UNEMPLOYMENT REACHES SPECIFIED LEVELS.

[2] GEORGIA LAW PROVIDES 2 ADDITIONAL WEEKS WHEN CLAIMANT'S BASE-PERIOD WAGES TOTAL 4 TIMES HIS HIGHEST QUARTER WAGES.

Source: UNITED STATES DEPARTMENT OF LABOR
BUREAU OF EMPLOYMENT SECURITY

The unemployed individual who receives these benefits can continue to purchase goods and services. As a result, employment in establishments he buys from is maintained, and the community gains.

The Role of the Federal Government

The current program of unemployment insurance recognizes that both the Federal and State governments have an interest in the problem of unemployment and a responsibility for handling it. Although many changes have been made in the unemployment insurance program since it was first established in 1935, the basic framework and objectives remain the same.

The Federal Government levies a uniform payroll tax on employers in all States, but employers are allowed a credit (offset) of 90 percent against this tax for taxes they pay under State unemployment insurance laws which meet certain requirements. In other words, an employer who would owe the Federal Government $100 in a State that had no unemployment insurance law could, if the State then passed an acceptable law, pay only $10 to the Federal Government and the remaining $90 to the State in the form of unemployment insurance premiums. In addition, Federal grants are made to cover each State's expenses in administering an approved law.

The Federal tax does not apply to employers who have fewer than four employees in at least 20 weeks in a calendar year. Also excluded are farm employers, certain nonprofit religious, charitable, and educational organizations, government agencies, and individuals who employ domestic servants in their homes. Separate Federal programs cover railroad workers, Federal civilian employees, and ex-servicemen.

The Federal law requires that contributions collected under a State law must be deposited to that State's account in an Unemployment Trust Fund maintained in the United States Treasury, and must be used for the payment of benefits. The State's program must provide efficient administration and prompt payments of benefits which are due under the State law. Benefits must be paid through public employment offices.

How the State Programs Operate

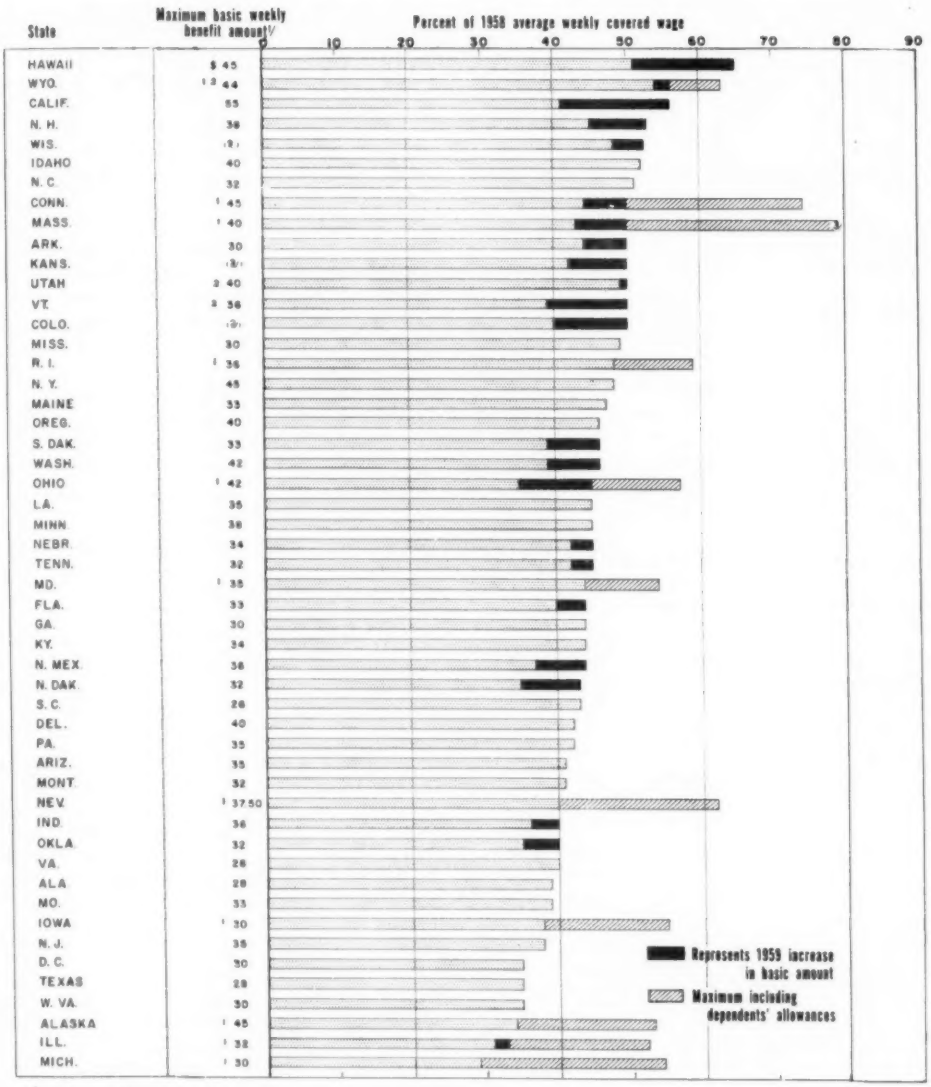
Each of the 50 States and the District of Columbia has an approved unemployment insurance law. Each State legislature determines who shall be covered by the law, who shall pay taxes and the amount of the tax, and what the benefits shall be. Each State administers its own law. No two unemployment insurance laws are exactly alike, but they all follow the same general pattern.

Benefit Formula. The provisions of the benefit formula determine which workers are insured, and for what amounts. A worker's eligibility for benefits and the amount he may receive in a 12-month "benefit year" are determined by his employment and earnings record during a recent "base period" (usually four consecutive quarters).

Benefits are paid for each week of unemployment up to a specified maximum number of weeks. In some States, all workers are entitled to benefits for the same number of weeks of unemployment (uniform duration); in others, the workers with the most employment during the base period are entitled to benefits for the most weeks (variable duration). The most common maximum is 26 weeks, although it may be as low as 18 or as high as 39 weeks. (See chart 1.)

The amount payable for a week is determined by the worker's past wages, within prescribed limits. (See chart 2.) The general goal is to provide weekly benefits amounting to 50 or 60 percent of the worker's average weekly wages, though each State has set minimum and maximum weekly rates. Maximums for individual workers in 1959 ranged from $26 to $55, with 10 States providing even higher maximums for workers with dependents.

Chart 2. Legal Maximum Basic Weekly Benefit as a Percent of Average Weekly Covered Wage, by State, October 1959



[1] EXCLUDES DEPENDENTS' ALLOWANCES.

[2] IN STATES NOTED, LEGAL MAXIMUM WEEKLY BENEFIT AMOUNT IS SET AT SPECIFIED PERCENT OF AVERAGE WEEKLY WAGE: ANNUALLY IN KANSAS (50 PERCENT), UTAH (50 PERCENT), VERMONT (50 PERCENT), AND WYOMING (55 PERCENT); SEMIANNUALLY IN WISCONSIN (52 1/2 PERCENT) AND COLORADO (50 PERCENT OF AVERAGE WEEKLY WAGE IN SELECTED INDUSTRIES). IN KANSAS, COLORADO, AND WISCONSIN, NEW MAXIMUM TO BE SET JAN. 1, 1960 AT PERCENT OF WAGES INDICATED.

[3] IN MASSACHUSETTS, MAXIMUM INCLUDING DEPENDENTS' ALLOWANCE MAY NOT EXCEED CLAIMANT'S AVERAGE WEEKLY WAGE BASED ON HIS HIGHEST QUARTER'S WAGES.

Source: UNITED STATES DEPARTMENT OF LABOR
BUREAU OF EMPLOYMENT SECURITY

Eligibility Conditions. Benefits are payable as a matter of right to a worker who meets the prescribed conditions. First, he must have had a specified minimum amount of earnings in covered employment during his base period. In some States, the amount of the minimum is a flat sum, such as $500. In others, it is a multiple of his weekly benefit amount, such as 30 times that weekly rate. Generally, the worker must have had earnings in more than one quarter of his base period.

Prior earnings are not the only requirement for eligibility for benefits. The worker must also be unemployed, be able to work, and ready and willing to take a job. A worker is considered unemployed in any week in which he performs no services and receives no wages, or in which he works less than full time and receives wages of less than his weekly benefit amount. He must not be disqualified under any other provision of the law. These provisions are intended to insure that payments are made only to workers unemployed because of lack of suitable work, and to prevent the prospect of receiving benefits from encouraging workers to prefer unemployment to jobs. Considerable variations exist among States in the conditions of eligibility for benefits.

To be eligible to receive benefits for a particular week, the worker must register with the public employment office so that a job can be found for him if possible. A worker who leaves his job voluntarily without good reason, or is discharged for misconduct connected with his work, or refuses suitable work without good cause, is disqualified from receiving benefits for a period of time. A worker does not receive benefits for unemployment resulting from a labor dispute in which he is taking part or has an interest.

Appeals. If a worker is dissatisfied with the local employment office's decision on his claim, he has the right to appeal to an impartial tribunal. Employers, too, have a right to appeal agencies' decisions.

Benefit Payment. To receive benefits, the worker must file a claim at the public employment office at the beginning of his period of unemployment. He must continue to file claims at the end of each week for which he wishes benefits. He can file such claims in any public employment office in the country, and be paid benefits by the State in which his wage credits were earned.

In most States, the first week of unemployment for which claims are filed is an unpaid waiting period. During that week, the agency checks the worker's employment record during the base period, and determines whether he is insured, and if so, what his weekly benefit should be and for how many weeks it should be paid. The agency also determines whether he meets the eligibility requirements. His employer is given an opportunity to tell the agency about the circumstances under which the worker left his job.

If the worker meets all requirements, at the end of the second week of unemployment he may file another claim, which is paid. Most States pay by a check issued after the claim is received. Only two States pay in cash at the time the claim is filed, and five States write the checks in the local office at the time the claim is filed.

Experience

The record of the program since it began shows that the American worker, given a choice, much prefers work and wages to benefits. The volume of benefits claimed and received by workers has been determined principally by the availability of work opportunities, not by the availability of benefits. As the table on page 8 shows, the number of workers who received benefits and the number who exhausted their benefits have been much higher in the years of reduced business activity.

During 1958, a recession year, benefits paid to workers in employment covered by State unemployment insurance laws totaled about $3.5 billion. Large

as this figure may seem, however, it represents only 2 cents for every $1 in wages received during 1958 by workers.

In purely statistical terms, the results of the program are impressive. However, the great material benefits to the workers and their families represent only the small, measurable part of the gain. To millions of individuals and families, this program has also meant the maintenance of self-respect in bad times, and, in good times, a relieving sense of security.

Number of unemployment insurance beneficiaries and number of claimants exhausting their benefit rights, 1941-58

(In millions)

Year	Beneficiaries[1]	Claimants exhausting benefits[1]
1941	3.4	[2]1.5
1942	2.8	[2]1.1
1943	.7	[2] .2
1944	.5	[2] .1
1945	[3]2.8	[2] .3
1946	4.5	2.0
1947	4.0	1.3
1948	4.0	1.0
1949	7.4	1.9
1950	5.2	1.9
1951	4.1	.8
1952	4.4	.9
1953	4.2	.8
1954	6.6	1.8
1955	4.6	1.3
1956	4.7	1.0
1957	5.6	1.2
1958	7.9	2.6

[1]Includes unemployment compensation for Federal employees. This program became effective January 1, 1955.

[2]Excludes Indiana, Wisconsin, and Wyoming from 1941-43; Wisconsin and Wyoming in 1944; and Wisconsin in January-November 1945.

[3]Excludes Wisconsin.

MANPOWER -- CHALLENGE OF THE 1960'S

A New Department of Labor Chart book

In the decade of the 1960's, probably to a greater extent than at any other time in our history, manpower will be a determining factor in our national strength and welfare. What this country accomplishes in the education, training, and utilization of its people will greatly influence our success in achieving continued economic and social progress and in meeting the unprecedented international competition with which we are faced.

To solve the manpower challenge of the 1960's will require cooperative and creative efforts on the part of many groups—educators, guidance counselors, business and labor leaders, government officials, and other concerned citizens. Since freedom of choice for the individual is a fundamental right in our democratic society, these efforts must rely for their success upon the provision of opportunities, incentives, and information which will enable and motivate individuals with the required abilities and interests to enter fields of work where their services are most needed.

The dimensions of the manpower problem with which this country will be faced in the decade just beginning are depicted in a new chartbook, Manpower--Challenge of the 1960's, recently issued by the U.S. Department of Labor. Some highlights of the findings illustrated in this book are as follows:

▼ Dramatic growth in the Nation's population is expected to continue through the 1960's. Birth rates are expected to remain high and death rates to decline--raising the total population from 180 to 208 million, or by 15 percent, between 1960 and 1970.

▼ The number of young people reaching 18 years of age is expected to increase especially fast--from 2.6 million in 1960 to 3.8 million in 1965, up nearly 50 percent in only 5 years. Because of the rising numbers of young people, the numbers of new workers entering the labor force will mount steadily. By the late 1960's, 3 million new young workers are expected to start their work careers each year, compared with a present annual rate of about 2 million. Altogether, 26 million young people will enter the labor force during the 1960's, almost 40 percent more than during the 1950's.

▼ These young workers will have more education than those who started working during the 1950's. About 70 percent of them will have at least graduated from high school and 26 percent will have some college education, whereas only 60 percent of the young people who entered the work force in the 1950's, were at least high school graduates and 22 percent had some college education. Nevertheless, there will still be millions of young workers without a high school education. Current trends suggest that about 7.5 million of the young people entering the labor force during the 1960's will not have completed high school, and that 2.5 million youths will not have completed even the eighth grade.

▼ The importance of aiding and encouraging boys and girls to get all the education and training possible is emphasized when these findings are compared with employers' hiring standards and employment trends in different fields of work. Employers are requiring a high school or college diploma for more and more jobs. Furthermore, the biggest gains in employment are expected in the groups of occupations requiring the most education and training.

Single copies of the 24-page report from which these highlights are drawn may be obtained upon request to the U.S. Department of Labor, Washington 25, D.C.

Under Secretary of Labor James T. O'Connell will present the manpower picture for the 1960's on April 12th at the American Personnel and Guidance Association Convention in Philadelphia.

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PART-TIME JOB OPPORTUNITIES FOR WOMEN

by Jane L. Meredith
Women's Bureau

Part-time employment is of increasing importance today—to the women who hold or are seeking part-time jobs, to the employers who now or in the future may find part-time workers a valuable part of their work force, and to all those interested in the manpower resources of the economy.

More women are now working part-time than at any other time in the Nation's history. From 1950 to 1958, the number of part-time workers showed a substantially greater proportionate increase than the number of full time workers, and the number of women working part time increased proportionately more than the number of men working part time. From 1955 to 1975, the number of women part-time workers is expected to increase by more than 75 percent in contrast to an increase of about 50 percent in the number of women full-time workers.

The woman part-time worker may be a student who combines studies with work to help meet expenses and also obtain valuable work experience. She may be a wife and mother who works in order to contribute to family income, broaden her interests, and maintain her work skills. She may be a mature woman who finds that the lightening of home responsibilities as her children grow up frees her for part-time work; or she may be a retired person who works to supplement retirement income.

What Is Part-Time Work?

Since the most common work schedule in this country is the 40-hour week, the woman seeking part-time employment is likely to think in terms of a job which requires a workweek of substantially less than 40 hours. The United States Bureau of the Census has a standard of "35 hours or more" for full-time employment, so that a workweek of anywhere from 1 through 34 hours is considered part-time work. This is a useful definition of part-time employment for the economy as a whole, although it may not be the one used in every industry.

Temporary or seasonal work, involving a workweek of 35 or more hours but lasting less than a full year is not considered part-time work. Although the part-time worker may be employed less than a full year, it is the shorter weekly schedule of hours (less than 35) which identifies her as a "part-time" worker. Her schedule may call for only a few hours' work a day, a few full workdays a week, or some combination of full and short workdays.

Part-Time Work and the Nation's Economy

The importance of women part-time workers to the Nation's manpower resources is clear when the magnitude and growth of this segment of the labor force are considered. In 1958, nearly one-third of the 29 million women who worked at some time during the year were part-time workers. Women part-time workers were employed in every major industry and occupational group, and the majority worked 27 weeks or more during 1958.

While men are in the majority among full-time workers, women predominate among part-time workers. During 1958, 59 percent of all part-time workers were women. By contrast, women constituted slightly less than one-third of the full-time labor force in 1958.

Changes from 1950 to 1958 showed that the number of women part-time workers is growing markedly faster than that of women working full time. Also, the percentage of all working women who were employed part time increased

from 27 percent in 1950 to 32 percent in 1958.

Where Do Women Find Part-Time Jobs?

Women worked part-time in every major industry and occupational group in 1958.

The service and trade industries had large concentrations of part-time employment--in retail stores and eating and drinking places, personal services, and medical, educational, and other services. Women working part time in sales and service occupations--as waitresses, salesclerks, private household workers, practical nurses, beauty operators, and so forth--numbered in the millions. Many other professional women, such as teachers, nurses, and librarians, worked part time in educational and medical services.

Many clerical workers were employed part time--as cashiers and telephone operators working in retail trade, service industries, and transportation and communication; and as office workers in virtually all industries.

Public administration establishments--Federal, State, and local--employed a sizable number of women part-time workers in 1958, who included some public officials, clerical workers (including some postal workers), protective service workers (policewomen), and some operatives.

Manufacturing industries had some part-time employment of women, most of whom were working as operatives (semiskilled workers).

A few industries, including construction, forestry, fishing, and mining, showed very small total employment of women and only negligible part-time employment. On the other hand, there were many women part-time workers in agriculture (including many unpaid family workers).

The remaining women part-time workers were self-employed in a variety of industries. Many were managers, officials, and proprietors of retail stores and personal service establishments.

Although some opportunities for part-time work are available, as has been noted, in a wide range of jobs and industries, the majority of women part-time workers are employed in a relatively small number of occupations. Some information about these occupations, which may be helpful to persons interested in part-time work, is presented below.

Service Workers

Waitresses. Experienced waitresses find ample opportunity for part-time employment in restaurants and hotels. Employment of part-time waitresses is traditional in eating and drinking places, since daily peaks and lulls are inherent in the nature of the business. Over a half million women worked part time as waitresses during 1958.

Thousands of women work part time as waitresses in restaurants and hotels

This part-time work is concentrated in busy periods when quick and efficient service is required. It involves continual standing and lifting of trays of food. For these reasons, experience and physical stamina are required.

Beauty Operators. Beauty operators can find part-time jobs in many shops. Since the demand for beauty services is at a peak in the latter part of the week, beauty operators may work 2 or 3 full days a week--usually Thursday, Friday, and Saturday. Another factor which has tended to increase opportunities for part-time work in beauty shops is the general shortage of qualified operators. No current data are available, but the 1950 Census revealed that about one-fifth of all beauty operators were part-time workers.

Even for part-time work, beauty operators must be licensed by State cosmetology boards in almost all States. Women who wish to operate beauty shops in their homes on a part-time basis are also required to obtain a shop owner's or shop manager's license.

Practical Nurses. Approximately one-eighth of all women who worked as practical nurses in 1950 were part-time employees. Since that time, the employment of practical nurses to free professional personnel from duties which can be handled by less highly trained people has increased, and the shortage of nurses has increased the number of part-time employment opportunities. It is estimated that altogether, over 165,000 licensed practical nurses were employed, either full or part time, in early 1956, in hospitals, other institutions, and in private homes.

All States (but not the District of Columbia) provide for licensing practical nurses, and most employers hire only those who have licenses. Typically, a training period of 1 year is required for licensure. Good physical and mental health is another qualification.

Mature women may find practical nursing an interesting employment opportunity, since many schools accept students who are up to 50 years of age.

Sales Workers

Retail Salespersons. Sales work is a major source of employment for women who work part time. During 1958, over 1.1 million women worked part time in sales positions, close to one-half of all women working in sales jobs. A great many of these part-time workers were sales clerks in general merchandise stores or in stores specializing in apparel and accessories or furniture, home furnishings and equipment. Most of the remaining sales workers were in other branches of retail trade. Relatively few were in wholesale trade or other industries.

The hours scheduled for these jobs may be arranged for evening and Saturday work, or for midday peak business hours. No experience or special knowledge is required for many part-time sales positions. New employees, however, may receive brief training in operating a cash register, filling out the various types of sales tickets, and so forth. Many opportunities for part-time sales work are open to mature women. Such jobs may also be open to schoolgirls. Variety stores are frequently more willing than department stores to start inexperienced girls in sales positions.

Other Sales Workers. Some insurance companies hire women as agents on a part-time basis. In 1950, approximately one-fifth of the 25,000 women agents and brokers handling life and other types of insurance were employed part time.

Extensive training in the principles of insurance and in the costs and benefits of various types of plans is required for all insurance agent positions, whether full or part time. Many States require that an agent pass a written examination before a permanent license is granted. The necessity for such a great amount of training may be a deterrent to those interested only in part-time work.

Insurance agents have a good deal of freedom in arranging their own working hours. Evening and weekend work is often required, however, for making appointments and visiting clients.

Some women work part time as real estate agents. Approximately one-fourth of the women real estate agents and brokers employed at the time of the 1950 census worked less than 35 hours a week. However, the thorough knowledge of the tax, insurance, financing, legal, and other aspects of real estate selling required in this work calls for more training than part-time workers may be willing or able to undertake.

Agents must be on call to show property at times convenient for prospective customers. Working hours are, therefore, somewhat irregular in this field, and may be long when several properties are handled. These factors may make real estate selling a poor choice for women interested in regular part-time work for specified hours or days a week.

Clerical Workers

In 1958, over 1.3 million women worked part time in clerical occupations; they accounted for slightly more than one-sixth of all female clerical workers. About 300,000 of these part-time workers were employed as secretaries, stenographers, or typists, and the more than 1 million remaining worked in a variety of other clerical positions.

Secretaries, Stenographers, and Typists. Industry representatives indicated that the great majority of part time workers in these occupations were typists. Secretaries and stenographers are usually hired on a full-time basis.

Typists seeking part-time jobs may work in establishments where the normal workweek is less than 35 hours a week--as it is in some physicians' and dentists' offices, schools, welfare and religious services, nonprofit membership organizations, and the like. In addition, typists can sometimes find fairly regular work for a few hours or days a week in offices needing special help or to relieve regular employees.

Proofing Machine Operators. Proofing machine operators are sometimes hired by banks for part-time work. Operation of the machines, which list and sort checks, is learned on-the-job in a relatively short time. Work schedules vary considerably, but are often from 4 to 5 hours a day in the afternoon. The operators are used to meet peak work at the end of banking hours and to relieve regular employees who would otherwise have very long hours.

Cashiers. Almost one-fifth of the women who worked as cashiers in 1950 were part-time employees. The great majority of all women cashiers worked in retail trade--primarily food stores, eating and drinking places, and general merchandise stores. Some large food chains reported that as many as two-thirds of their cashiers were part-time workers.

A typical part-time schedule would include work for perhaps two or three evenings a week and all day Saturday. Thursday, Friday, and Saturday are often the busiest days, and some stores reported use of part-time workers during midday peaks on those days. Since many stores are open 12 hours a day, part-time workers are used to relieve regular employees, as well as to help meet peak business needs.

Telephone Operators. Women also find part-time work as telephone oper-

Telephone operator at a busy switchboard connects a long distance call

ators in a variety of service and other establishments, as well as in telephone companies. Hotels and other places where the switchboard must be open on an around-the-clock basis reported use of part-time telephone operators, generally for a few hours' work each day. Reports showed that many of these part-time workers were high school girls employed through the high schools under work-study programs.

Many opportunities for part-time employment are available in other office jobs, such as those of bookkeeper, office machine operator, receptionists, and file clerk. Other part-time clerical workers find jobs as library assistants, telephone ad takers, or survey enumerators.

Operatives. More than 600,000 women worked part time as operatives during 1958--about 16 percent of all women in this classification. However, many of these women were employed in manufacturing, and were working part time because of slack periods of work or other economic reasons, rather than from personal choice or preference.

Outside manufacturing, some female operatives worked part time in such occupations as those of dressmaker (either self-employed or in retail trade), bus or taxi driver, and laundry or dry cleaning operative.

Professional, Technical, and Kindred Workers

Teachers. About 165,000 women were employed as part-time teachers outside of colleges and universities during 1958. Included in this group were teachers in secondary and elementary schools and kindergartens, as well as teachers of such diverse subjects as flying, driving, sewing, and first aid.

A large proportion of the women employed part time as classroom teachers worked as substitute teachers, according to school administrators and teachers. Some school boards maintain lists of women willing to work as part-time substitute teachers, and call on them when the need arises. Qualification requirements vary, with some schools requiring regular teacher certification. These substitutes are often paid a scheduled daily rate, regardless of previous experience or degrees held.

Elementary school teacher helps students with their lesson writing

In addition, teachers of special subjects such as art or music are sometimes employed on a part-time basis. However, schools in larger cities reported that teachers of these subjects are generally hired full time to teach in a number of different schools.

Many college and university teachers are also employed on a part-time basis. A survey by the National Education Association, of over 1,000 degree-granting institutions in 1958-59, showed that over 50,000 faculty members were classified as employed part time, and represented nearly 30 percent of all those employed. In the same survey, almost 500 junior colleges reported employment of over 7,500 part-time teachers--nearly 40 percent of their total teacher employment.

Librarians. More than one-fourth of all persons who reported their occupation as "librarian" in the 1950 census were part-time workers. More than 55,000 professional librarians, both full and part time, were employed in 1957.

Librarians are employed in public libraries and in libraries in public schools, colleges and universities, government agencies, and business firms. Probably most part-time librarians work in public libraries, or those connected with schools, where the standard workweek is often less than 40 hours.

The general shortage of fully trained librarians and the increasing numbers of married librarians who are unwilling to work a full workweek suggest that part-time employment will persist in this profession over the next several years. In addition, a number of women will probably continue to work part time in nonprofessional positions in libraries. These "library assistants" perform such clerical duties as charging books, filing, typing, and so forth.

Professional Nurses and Other Professional Health Workers. Part-time jobs may be found in all branches of nursing, although some fields offer more opportunities than others.

One of the best fields for nurses desiring part-time work is in general duty nursing. Studies by the American Hospital Association indicate that more than two-fifths of all general duty nurses in the hospitals surveyed in 1958 worked part-time.

Generally, the shortage of professional nurses is expected to continue through the next several years. As a result, the demand for part-time workers to supplement short staffs and relieve regular workers is also expected to continue.

Some women work part time as occupational and physical therapists or as dietitians. Others work part time in technical occupations, such as those of dental hygienists, medical technicians, and medical X-ray technicians. Part-time employment opportunities were reported to be particularly good for dental hygienists in private dental offices.

A young professional nurse checks the accuracy of her drug measurement

Social, Welfare, and Religious Workers

Qualified full-time social workers were in short supply in 1959 and, as in the case of health workers, this shortage resulted in an increased need for part-time workers.

In 1958, more than 150,000 women worked part time in welfare and religious services, some in professional work and others in clerical and other positions.

Employment of part-time social workers is not heavily concentrated in any particular field of specialization, although group work may offer the most opportunities. In addition to professional positions, subprofessional jobs as "group leaders" on a part-time basis are offered by some agencies.

Educational requirements were the same for part-time as for full-time professional jobs and generally included some graduate training.

Managers, Officials, and Proprietors

More than 200,000 women worked part time as managers, officials, and proprietors during 1958--approximately 17 percent of all women in these occupational groups. This total represented a substantial increase—almost two-thirds since 1955. Of these part-time workers, the majority were self-employed—nearly one-fourth in retail trade and one-third in a variety of other industries.

A variety of occupations were included in this group--buyers, managers and proprietors in retail trade; cafeteria managers; bankers; officers of membership organizations; program directors in radio and television; caterers; postmasters; and other public officials.

The Impact of Population Changes

The number of women working part time in any one month is expected to rise to 9 million by 1975. The greatest increase is predicted in the group of part-time workers employed from 15 to 34 hours a week; hence, the contribution of women part-time workers to the economy in terms of man-years worked will be increasingly significant.

Women aged 35 and over will add the greatest number of workers to the part-time labor force--about 6 million more by 1975, a 55-percent increase. The number of girls aged 14 to 24 working part-time will increase only 3 million, but will show the largest percentage increase--70 percent by 1975.

Suggestions to Women Seeking Part-Time Work

Since the desire for money income is a primary factor in the decision to seek a job, the would-be-part-time woman worker must decide whether a part-time job will bring an adequate salary. She must also balance the increased costs of working against the salary she will receive. Transportation, meals away from home, and additional clothing must be taken into account as well as other incidental expenses. If a woman hires outside help to assist with housework or child care, work-related expenses will be even greater.

Time schedules are also an important factor to women who wish to work part-time. One woman may find that mid-day hours when the children are in school are the best work time for her. Another may decide on an evening or weekend job, when other members of the family are free to take care of the children. Whatever the hours, it is usually necessary that they be on a regular schedule, so that the employer may be assured of having the worker on the job during the scheduled hours.

The woman considering part-time work must also decide which type of job to seek. It may be helpful to her to assess her abilities and experience in terms of the needs of industries and occupations with a record of high part-time employment. In those areas where the incidence of part-time work is low, the jobseeker may have to convince employers that the opening is suitable for a part-time schedule. In addition, she may have to adjust her work schedule to suit the employer's particular needs.

Having decided what type of job she wants, the woman worker should keep in mind the usual recruiting methods in her chosen field. Generally, the employers surveyed in service and trade industries used a variety of methods to recruit new workers, including requests through public and private employment agencies, newspaper advertisements, and word-of-mouth.

Department and specialty stores frequently use newspaper advertising to recruit part-time salespersons, although many jobs openings in this field were filled by jobseekers who applied for work at the store. Food stores utilize public employment services in

addition to newspaper advertising to find part-time grocery checkers and other workers. Some large chain stores with several outlets in one city have a central hiring office to service all stores in the area. Food store representatives indicated that a store's customers are often a source of new workers. Signs listing job openings are posted in the store and interested persons apply to the manager.

Clerical positions are often found through employment agencies, advertisements, and personal contacts. Some clerical workers find fairly regular part-time work by registering with an agency which places them in different firms requesting temporary help. These agencies place the workers on their own payrolls and perform the task of job seeking for them. In addition, graduates of business schools frequently obtain jobs through the placement services offered by their schools.

Detailed information on part-time employment for women is contained in a U.S. Department of Labor's Women's Bureau publication Part-Time Employment for Women (Bulletin 273, 1960). Available from the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C. (In press.)

CAREERS FOR WOMEN IN THE PHYSICAL SCIENCES

This publication reports on careers for women in five selected sciences--chemistry, physics, geology, astronomy, and meteorology. It discusses the kinds of scientific work in which women are engaged, some of the contributions they have made, and employment opportunities open to capable young women who qualify themselves for scientific endeavor in these fields.

This publication (W.B. Bull. No. 270, 1959), prepared by the Women's Bureau, U.S. Department of Labor, is for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C. Price 35 cents.

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EMPLOYMENT OUTLOOK FOR DENTAL LABORATORY TECHNICIANS

by Morton Levine

Much of the laboratory work once done by dentists is now performed by technicians. Dental laboratory technicians make artificial dentures, crowns, bridges, and other dental appliances, in accordance with specifications from dentists. Orders for work are usually accompanied by impressions, or models, of patients' mouths. In carrying out the dentists' directions, technicians may form models for sets of teeth by duplicating in hard plaster (dental stone) the impressions taken by dentists; make metal castings for dentures; polish and finish dentures; make metal or porcelain crowns to preserve partially destroyed teeth; finish metal cases; make gold and other metal bridges for fixed and removable partial denture cases; and make appliances to correct such difficulties as cleft palates. They use small handtools and machines such as lathes and drills in their work. Since technicians are not professionally qualified to diagnose dental problems, they do not work directly with patients.

Some dental laboratory technicians are "generalists" who are familiar with all types of dental laboratory work; others specialize in one or a few areas such as crown and bridge construction, setting up and arranging artificial teeth, working with ceramics (porcelain), or casting gold or other metal alloys used in dentistry. The level of the work done by technicians ranges from semiskilled to highly skilled, depending upon the qualifications of the individual technician and the requirements of the job. Technicians with limited training and experience ordinarily perform relatively simple jobs—for example, mixing and pouring plaster into casts and molds. A well-qualified dental laboratory technician may work with expensive metals or finish dental appliances to exact likenesses of extracted teeth.

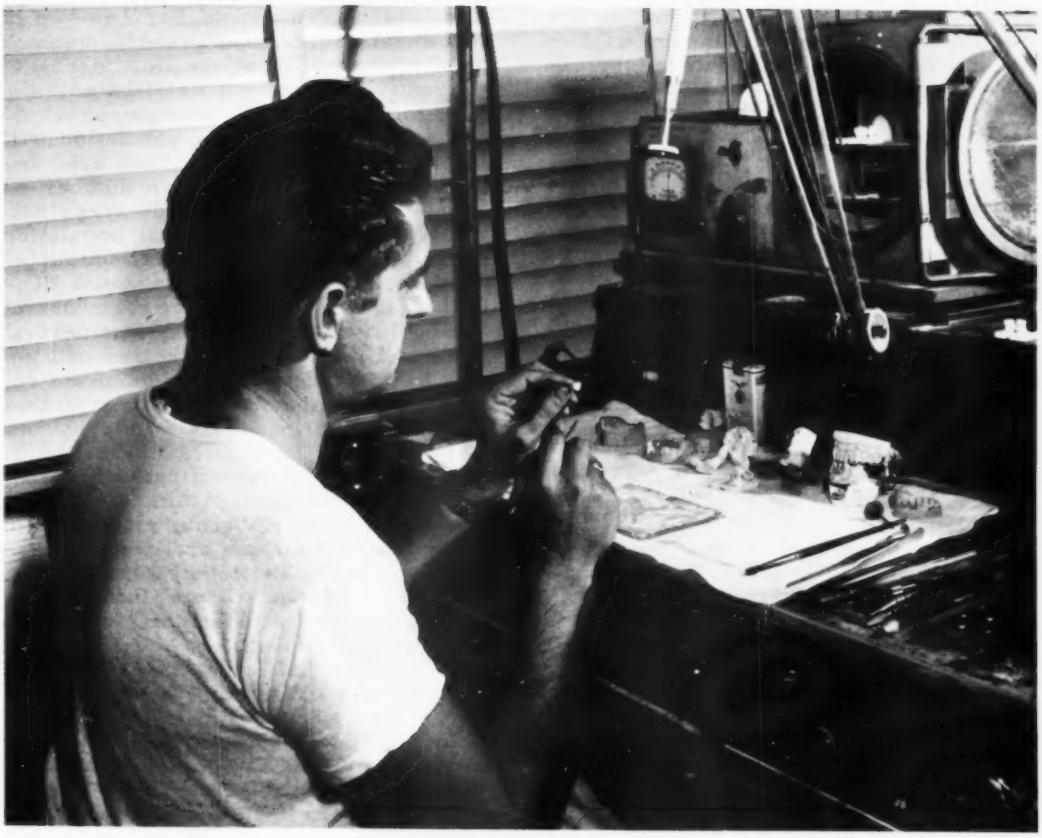
Where Employed

The great majority of the estimated 25,000 dental laboratory technicians employed in mid-1959 worked in commercial laboratories, either as employees or in their own establishments. Commercial laboratories are typically small businesses; more than one-fourth of all laboratories were 1-man shops and less than 15 percent had 10 or more workers, in 1959. Between 2,000 and 3,000 laboratory technicians worked in dentists' offices. Most of the remainder--about 650--were employed by the Federal Government, chiefly in the Veterans Administration and in the Department of the Army. Women, who account for about 10 percent of all dental laboratory technicians, worked mainly in large commercial laboratories.

Dental laboratory technicians, like the dentists who use their services, are located mainly in big cities and in the most densely populated States. In 1959, more than half of all dental laboratory technicians, it has been estimated, were in cities with more than 50,000 population. Moreover, they were concentrated in California, Illinois, New York, and Pennsylvania.

Training and Other Qualifications

At present, the most common method of entering this occupation is to secure a trainee position and learn the craft on the job--usually in a commercial laboratory or in a Veterans Administration or other hospital offering dental services. Typically, an on-the-job training program lasts from 3 to 4 years, although the length of this type of training varies according to such factors as the student's previous experience and training, his ability to master the techniques, and the number of specialized areas to be learned. Programs



This skilled dental laboratory technician is making an exact likeness of a tooth according to a dentist's prescription

for dental laboratory technicians are offered in some public vocational high schools and junior (community) colleges. In addition, a few private schools offer 1- to 2-year courses in dental laboratory technology. Regardless of the educational background, actual work experience is always necessary to qualify as a full-fledged technician.

Recently, the National Association of Dental Laboratories and the American Dental Association have jointly sponsored a certification program for dental laboratory technicians who can meet certain training and other requirements established by the associations. As of the fall of 1959, three schools had been accredited by the American Dental Association to provide high school graduates (or those with equivalent education) with the 2-year training required under the program. Formal course work during the first year includes instruction in such areas as medical jurisprudence, ethics, chemistry, ceramics, metallurgy, and other related subjects. During the second year, the student must complete 12 months of supervised practical experience in an approved school or dental laboratory. During this period, he sometimes receives some pay for work performed in connection with his on-the-job training. After completing the 2-year training program, 3 additional years of experience in a dental office or a commercial laboratory are required before the dental laboratory technician

is eligible to take the examination for certification in one or more of five areas--generalist, full denture fabrication, partial denture fabrication, ceramic technique, and crown and bridge fabrication.

Among the personal qualifications which employers look for in selecting trainees are a high degree of manual dexterity, good color perception, patience, and a liking for detailed work. Preference may also be given young people who have completed high school courses in art, ceramics and pottery, sculpturing, blueprint reading, plastics, metalworking, and physiology. A year or two of experience either as a clerk or an assistant in a dentist's office is also helpful preparation for prospective dental laboratory technicians.

Employment Outlook

Job opportunities are expected to be good, in the early 1960's, for well-qualified, all-round craftsmen (generalists), and for specialists in ceramics, gold work, and metal finishing. Some job opportunities will also arise each year for trainees. As in the recent past, the demand for dental laboratory technicians will probably stem largely from the need to replace technicians who transfer to other fields of work, retire, or die. Most opportunities for salaried employment, for both experienced and inexperienced dental laboratory technicians, will be with large commercial laboratories and in the Federal Government. Some experienced technicians will find favorable opportunities for establishing their own laboratories. A technician whose work has become known to several dentists in a community will have the best prospect of building a successful business.

A slow but steady increase in the demand for dental laboratory technicians is anticipated over the long run. In addition to the need for replacements, many more dental laboratory technicians will be required in the years ahead if the growth that is expected in this field is to be realized. The growth in population and its changing composition, the anticipated higher levels of income and employment, and the greater public awareness of the importance of preventive dentistry point toward the need for more dental laboratory technicians. The Nation's population will have more older people than ever before and, as a result, the number of people requiring artificial dentures will rise. Moreover, the total population is growing faster than the number of dentists, and it is likely that more dentists will send a greater amount of their laboratory work to commercial firms so that more of their own time may be devoted to "chairside" practice, research, and other professional activities.

In the long run, certification may become important for obtaining employment as a dental laboratory technician, since many employers are likely to regard the certificate as the best readily available evidence of the individual's competence for work in this field.

Earnings and Working Conditions

Inexperienced dental laboratory technicians employed in commercial laboratories typically earned between $40 and $60 a week, according to a 1958 survey made by the American Dental Association. Trainees employed in the Federal Government started at about $70 a week. Experienced technicians in commercial laboratories generally earned between $80 and $125 a week, depending on their skill level and experience. Technicians who work with ceramics or gold and other metals received the highest salaries. The majority of experienced dental laboratory technicians employed in the Federal Government in 1958 earned about $90 a week. In general, earnings of self-employed technicians are higher than those of salaried workers.

Salaried technicians usually work the standard 40-hour week, but self-employed technicians frequently work longer hours. Many technicians in commercial laboratories receive paid holidays and paid vacations and some are also provided paid sick leave, bonuses, and

other fringe benefits. Technicians employed by the Federal Government receive the same leave, retirement, and other benefits as other Government workers.

The work of dental laboratory technicians is not strenuous and most jobs can be done by handicapped workers, provided they have use of their hands and fingers.

COUNSELING AND GUIDANCE INSTITUTES REVIEWED*

The first summer's experience with the Counseling and Guidance Institutes set up under the National Defense Education Act of 1958 suggests strongly that the short-term institute is a highly successful method of strengthening counseling and guidance throughout the country. This conclusion emerged from a meeting of the directors of 50 institutes with staff members of the Office of Education in Chicago on September 28-30. The major purpose of this meeting was for the Office to obtain from the directors their professional appraisal of experiences with the institutes to assist in developing next year's program.

The directors agreed that two major problems faced the counseling and guidance profession: First, a shortage in the number of counselors and, second, a serious need to improve the professional qualifications of those now counseling. They considered the short-term institute a particularly effective instrument in meeting the second of these problems. A total of 2,209 enrollees attended the 50 institutes. Assuming that each of them, during this school year alone, will counsel 300 high school students, about 750,000 students throughout the country will benefit from the institutes program.

Beyond this fact, however, the institute directors identified the following results of the program:

Counseling and guidance as a profession was given an appreciable boost as a result of the institutes. Federal sponsorship gave the profession of counseling and guidance an importance in the eyes of both the general public and the educators which it had not had before.

The enrollees, who had previously had varying degrees of counselor training, gained a greater appreciation of what was involved in counseling and guidance, particularly of the importance to good counseling of a knowledge of psychology and other substantive fields.

College administrators and State and local school officials with whom the institute staffs worked in preparing for the institutes developed a greater interest in and better understanding of what the counseling and guidance field is.

The short-term institute, because of the intensiveness of the study program, is a particularly effective means of helping counselors improve their qualifications for counseling.

The Counseling and Guidance Training Institute staff is now preparing for negotiations with colleges and universities with whom they will contract for the operation of institutes next summer and during the 1960-61 academic year. A budget of $5 million will allow for a material increase in the number of short-term and regular session institutes.

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SCHOOL AND EARLY WORK EXPERIENCE OF YOUTH 1952-57*

by Margaret L. Plunkett

The proportion of young people in the United States who attend secondary schools and colleges has been steadily rising for many years. Nevertheless, many young people--a third of all those entering secondary schools--still terminate their formal education before high school graduation, and a sizable number never complete even the eighth or ninth grade. Of those who do graduate, nearly three-fifths do not continue their schooling after graduation. The high school dropouts, plus the high school graduates who do not go on to college or other specialized training, constitute the great proportion of the new entrants to the labor force each year.

Among new, young workers, the rate of unemployment has, over the years, been considerably higher than among older ones. Furthermore, the current problems of young people in getting suitable training and finding suitable work will be compounded in the 1960's, as the great numbers of persons born during the late 1940's and 1950's begin to enter the labor force. These greatly increased numbers of inexperienced young people will come into the labor market during a decade when the demand for workers with considerable education and training will be rising.

To obtain information that can be helpful in solving the growing problem of vocational adjustment of young people, the U.S. Department of Labor undertook a series of experimental surveys of boys and girls leaving school in seven labor market areas.[1] The studies were designed to provide accurate up-to-date information about the situation that faces inexperienced young people with no more, and sometimes less, than a secondary school education as they enter the world of work. The results of the surveys should be of interest to guidance counselors, educators, parents, employers, and community leaders, as well as to young people who are thinking about how they are going to earn a living and what kind of preparation they can bring to the life of work that lies ahead.

The School Leaver Studies

These studies represent an attempt to identify some of the major factors in youth's adjustment to work. What proportion of school leavers surveyed looked for jobs and what proportion found them? How long did it take, how did they go about the search, and what kinds of jobs did they get? How much did they earn? Did the graduates do better than the dropouts? What about unemployment? Did it affect graduates and dropouts equally? Why did the dropouts leave school? Did success in school correlate with success in the world of work?

Information on these important aspects of their postschool experience was obtained by direct interview with school leavers themselves in the seven areas. In addition, certain subjective questions were asked, such as plans for future training, job aspirations, how school could have been more useful; certain personal data were also obtained, such as present marital status and number of children--all of which helped to give a picture of what these school leavers were like. To evaluate their work history properly, it was necessary also to study the school records of these same individuals for certain basic data, such as age when they left school, highest grade completed, I.Q., vocational courses completed, and the reasons shown for leaving school. These two

*This article summarizes the major findings of a study which will be published later this year in the bulletin series of the Bureau of Labor Statistics.

[1]Harrison County, W. Va.; Vanderburgh County, Ind.; Phoenix, Ariz.; Port Huron, Mich.; Saginaw, Mich.; Providence, R. I.; and Utica, N. Y.

sets of interrelated data--school background and labor force experience--provided information about, and insight into, the problems of the school leavers.

For the purpose of these studies, "school leavers" were defined as those students who, after entering secondary school, either dropped out before graduation or, having graduated, did not go on to any school of advanced learning or training in the summer or autumn following their graduation. They were generally between the ages of 16 and 21, and were faced with the problem of assuming adult responsibilities either in the labor force or as homemakers.

Five of the seven surveys covered the 3 school years between September 1953 and June 1956. One covered the period September 1951 to June 1955 and one, the single school year 1955-56. The seven areas where surveys were conducted were located in the following regions: one in New England, one in the Middle Atlantic, one in the South Atlantic, three in the East North Central, and one in the Mountain region. All were industrialized in varying degrees, but none was a single-industry area. These areas ranged in industrialization from those which were primarily distribution points for wholesale and retail trade to those with extensive heavy industry. All but two of the areas were places which for many years had had a surplus of labor. Population of the areas ranged from about 40,000 to 350,000.

Findings

The findings in these surveys point up the complexity of the school leaver problem in relation to determination of educational, employment, and labor legislation policy. Certain facts stand out clearly.

Nonuniformity Among School Leavers. It is not accurate to think of the school leavers, either graduates or dropouts, as homogeneous groups. School leavers, like school stayers, are characterized by innumerable personal differences. For example, some of the graduates covered by the surveys who did not go on to college had school records similar to those who did go, and some dropouts had I. Q.'s as high, based on standard intelligence tests, as those who graduated. Work histories, likewise, varied widely among individuals in most groups. However, the male graduates not going to college presented a rather uniform picture--that of young men fairly continuously employed. The experience of male dropouts, on the other hand, showed more variation. Some had jobs, continuity of employment, and wages that approximated those of the male graduates, whereas others were irregularly or never employed.

Economic Need. The reason for dropping out did not appear generally to be economic in the sense that the family of the dropout could not supply him with the necessities for school attendance. The statements of the dropouts themselves and their school records, as well, attest that real economic hardship was present in few instances. This might appear to be explained by the generally high national levels of economic activity. None of the areas surveyed, however, were areas of labor shortage and several of the communities had substantial labor surpluses during the period covered.

Dissatisfaction With School. The major single reason given by the students for dropping out before graduation was dissatisfaction with school. This was undoubtedly due, in part, to the fact that about 85 percent of all dropouts were behind their normal grade by at least 1 year. This retardation usually began in grammar school. The dropouts interviewed did not mention this factor as a cause for dissatisfaction with school, but expressed boredom with school subjects, dislike of teachers, or other general complaints. The school records showed that over 45 percent of all the dropouts had I. Q.'s of less than 90 and about 33 percent had I. Q.'s of less than 85. According to educational experts, this means, among other things, that in all likelihood the degree of reading ability which would have made schooling interesting and manageable had not been acquired.

Early Marriage Among Girl Dropouts. Early marriage was another major reason given for dropping out. Girls were more likely than boys to give this reason, but it may well have been a hidden reason for boys who dropped out "to go to work," not because of the need for self-support, but as a prelude to courtship and marriage.

Age of Dropouts and Highest Grade Completed. Age 16 was the single year of age at which most dropping out occurred. Nearly 30 percent of the dropouts, however, were 18 or older at the time they left school—old enough to have graduated. Irrespective of age, about 40 percent of all the dropouts had completed a year or more of senior high school work (10th grade or above). The other 60 percent left at various years in the junior high school.

Vocational Education. Almost all the graduates, both boys and girls, had completed at least one vocational course, either commercial or industrial. This was also true for nearly two-thirds of both boy and girl dropouts. But there was an important difference between the graduates and the dropouts in the number of courses taken. For example, three-fifths of all the boy graduates had completed four or more industrial arts courses, compared with less than one-fifth of all the boy dropouts. The training of girl school leavers with respect to commercial courses followed a generally similar pattern. Two-thirds of all girl graduates had taken four or more commercial courses, compared with only 15 percent of the girl dropouts.

Completion of industrial arts courses by the boys seemed to have little effect on the type of entry jobs they obtained, and dropouts and graduates fared not too differently in this respect. For the girls, however, high school graduation, including commercial courses, opened the door to the typist-stenographer-bookkeeper occupations, whereas few of the girl dropouts were able to get such jobs. This raises the question whether it would be possible or practical to plan vocational courses for boys which are as directly related to the needs of employers in their respective communities as secretarial courses are to the needs of those who employ girls.

Mental Ability and Continuation of Education. The social waste resulting from failure to pursue an academic education beyond high school was not found to be significantly high in the communities studied. Only 16 percent of the graduates who did not go on to college and whose I.Q.'s were known had I.Q.'s above the normal range, i.e., 110 or over. There were differences among communities, of course. Applying the somewhat stricter standard of a score of at least 115, which is often used by educators in estimating ability to complete college successfully, the proportion of the more gifted graduates who did not go to college, dropped to 8 percent. However, since students with high I.Q.'s do not necessarily earn high grades, some of these graduates may not have had grades acceptable for college entrance, even though they had acquired enough academic credits. In addition, some might have had stronger nonacademic interests, and some of the girls may have been planning early marriages. The dropouts showed even less college potential than the graduates. Only about 6 percent of them had I.Q.'s of 110 or above and only 2 percent of 115 or above. Here, again, there were differences among the communities surveyed.

Thus, the major problem with respect to these dropouts may not have been so much the loss of potential college students as the likelihood that many of them could not have profited from senior high school courses. Successful completion of most senior high school subjects requires reading as a tool, and about one-third of the dropouts (as previously noted) had I.Q.'s which experience has shown are usually too low for acquiring adequate reading ability. On the other hand, the failure of the remaining two-thirds of these dropouts to complete senior high school may have represented a serious loss of potential craftsmen who, if they had completed high school, might have qualified for apprenticeship or other training for skilled occupations.

Labor Force Participation. Almost all boy school leavers who had remained in the areas surveyed (and for whom, therefore, this information was available) had entered the labor force, and about three-fourths obtained jobs fairly quickly. More than half of the boy graduates and two-fifths of the dropouts actually found jobs in less than a week after starting to look. On the other hand, 10 percent of the boy dropouts had looked for 14 or more weeks before they had found jobs, compared with only 5 percent of the boy graduates.

Approximately 90 percent of the girl graduates interviewed had entered the labor force and more than half had found jobs in less than a week after starting to look. In contrast, only about 70 percent of the girl dropouts interviewed had ever entered the labor force, and of these, two-fifths had found jobs within a week after starting to look. Seven percent of the girl dropouts had looked for 14 or more weeks before finding a job, compared with 4 percent of the girl graduates.

The alternative of enlistment for boys, and the tendency for girls to withdraw from the labor force rather than to continue looking for work probably minimized the number who reported looking for 14 or more weeks.

Outmigration. The generally favorable situation with respect to getting jobs in the area surveyed might have been different, had it not been for the substantial outmigration of young people, especially boys. Forty-eight percent of both boy dropouts and boy graduates--a total of about 1,500 individuals--had already left their home communities by the time of the interviews, thus reducing competition for available jobs. It is significant that, of all these boys who left their home areas, about half of the graduates and more than half of the dropouts had never had a regular job before leaving. A lower proportion of the girls had migrated from their home communities; again, a considerable proportion of these, especially the dropouts, had not worked before leaving.

First Jobs. A substantial proportion of the first (or entry) jobs of both boy and girl dropouts and of the boy graduates who were interviewed were in unskilled work. The proportion of these young people whose first jobs were in unskilled work ranged from 33 percent for boy graduates to 55 percent for girl dropouts. The proportion starting in sales jobs ranged from 12 percent for boy dropouts to 23 percent for girl dropouts, with the graduate groups falling in between. As might be expected for young inexperienced workers, many first jobs were of a type where advancement seemed limited, for example, those of filling station attendant, retail clerk, and delivery truckdriver. In several areas, sizable proportions were found in semiskilled factory jobs. The majority of the girl graduates found employment in office work, whereas girl dropouts were most likely to be employed as waitresses or retail salesclerks. Some of each group were factory operatives in the areas where such jobs were available for women.

Military Service. In the case of boys, military service often appeared to be a substitute for civilian employment. Of the 3,015 males who were included in the sample, one-third were found to be in the Armed Forces at the time when interviews were conducted. This was a considerably higher proportion than the 20 percent of all males in the Nation, aged 17 to 21, who were in military service in the summer of 1957. When only the 1,500 outmigrant males were considered, the role of the Armed Forces as an "employer" was even more obvious. About 80 percent of the boy graduates and 75 percent of the boy dropouts who had left their areas by the time of interview, and whose status was known, were in military service.

Jobs at Time of Interview. About 60 percent of all the school leavers employed at the time of interview were still in their first jobs. Many others were out of the labor force, and some few were unemployed. However, for the 40 percent employed whose jobs at the time of the interview were different from their first jobs, some progress had already been made by both gradu-

ates and dropouts. A widening gap in the skill level of the jobs held by graduates and dropouts was also becoming apparent, even though the time span covered was comparatively brief. Nearly half of the boy graduates were in skilled or semiskilled jobs, whereas only a third had started in these classifications. More than a third of the boy dropouts were in skilled or semiskilled work at the date of interview, compared with a little more than a fourth of them at the time of their first jobs. The proportion of girl graduates in office work had increased to 70 percent, compared with 60 percent in their first jobs; among girl dropouts in office work, the proportion had increased to 16 percent, compared with 11 percent for first jobs.

Earnings. The graduates were doing much better in terms of earnings on the jobs they held at the time of interview than were the dropouts. Among the boys, only 3 percent of the graduates were earning less than $40 a week, compared with 15 percent of the dropouts. In other words, five times as many dropouts as graduates were found to be at the lower end of the wage scale. Nearly a fifth of the girl graduates were earning $60 or more a week, compared with less than a tenth of the girl dropouts.

The jobs and wages of all the school leavers, of course, reflected differences in the economy of the areas where they worked as well as differences in their education. A boy's chances of earning $80 a week soon after leaving school depended first on whether he lived in an area where industry was paying such wages to beginning workers. However, if he had graduated from high school and $80-a-week jobs were available in his community, he was more likely to get one than if he were a dropout. Generally speaking, the boy graduates got the better jobs open to inexperienced workers. Obviously, the girl graduates, with their training in specific skills for office work, had a very definite advantage over the girl dropouts from the beginning, since office skills were in high demand in almost every community.

Amount of Unemployment. There was a sharp difference between graduates and dropouts in the amount of unemployment experienced. As already noted, it took somewhat longer, on the average, for dropouts to obtain jobs in the first place. At the time of the interviews, the unemployed boy graduates as a proportion of those then in the labor force, ranged from 3 to 9 percent in the various communities, but among the dropouts, the proportion ranged from 10 to 27 percent. Among the girl graduates, the proportion of those in the labor force who were unemployed at the time of interview ranged from 1 to 12 percent, but among the girl dropouts, the range was from 10 to 50 percent.

Among the boys who were ever in the labor force, the graduates had spent an average of from 5 to 11 percent of their time since leaving school as unemployed workers, while the corresponding amounts of time spent by the boy dropouts as unemployed ranged from 6 to 27 percent. For girls, the situation was comparable—graduates were unemployed from 4 to 11 percent of their time and dropouts from 10 to 26 percent. The more favorable unemployment experience of the graduates may have been due in part to the nature of their jobs, since the graduates could be more selective—more able to choose those jobs likely to be permanent.

Unaccounted-for Time. In addition to unemployment, which is defined as time spent unemployed but actively looking for a job, the amount of "time unaccounted-for" was of concern in these surveys. Such unaccounted-for time was defined as time when the school leaver was not working or looking for work; was not in military service, or, in the case of girls, not married; had no disabling illness or accident; was not required to assume responsibilities at home because of hardship there; and, finally, was not in school. In such periods, the school leavers gave no specific reasons for being out of the labor force. The responses which best described this situation were likely to be, for boys: "I was trying to make up my mind what to do"; and in the case

of girls: "My father doesn't want me to work," or "I don't have to work."

Only three of the areas surveyed provided data that could be used as a basis for observation on this point. In these areas, "idle time" did not appear to be a serious problem for most boy graduates, even though some few apparently did spend months doing nothing. For the boy dropouts, the problem was more serious. Even though almost all of them had been in the labor force at some time, nearly one-third had unaccounted-for time, and this averaged well over 6 months for those with such time. These months when the boy dropouts were not even looking for work were not necessarily consecutive, but they represented, on the average, almost one-fourth of the time since this group had dropped out of school.

For the girls, both graduates and dropouts, the information on "idle time" was much less precise. Marriage was considered a full-time job, and in the absence of more specific information, the date of marriage was assumed to be the date of leaving school. This last assumption probably resulted in an understatement of the amount of unaccounted-for time among girls who had married. Even so, about one-fifth of the girl graduates had unaccounted-for time, averaging almost a half year, or a fifth of their time since graduation. The girl dropouts had even more unaccounted-for time. About a fourth of them averaged nearly a year in this category, or more than a third of the total time since they left school.

EMPLOYMENT OPPORTUNITIES IN OCEAN STUDY

by Mannie Kupinsky
and
Evelyn R. Kay

Young people with a scientific bent and a zest for adventure can look forward to growing opportunities in studies of the oceans during the 1960's. Most of these jobs will be with Federal or State agencies, universities, and private marine laboratories--located on or near the Atlantic or Pacific coast. In addition, a rapidly growing number of commercial companies will offer products or services in this field, such as special instruments and weather and ocean information.

About 6,000 people are currently employed in the study of the oceans. This comparatively small group includes scientists from all major fields, many types of engineers, technicians, craftsmen, and maritime personnel.

Chemist making sediment analysis of a bottom core using color scale

The oceans have a major role in determining weather, providing much of our food, and are an important means of transportation. The lands beneath them have vast untapped fields of oil, natural gas, and minerals. The main reason, however, for the great interest in the oceans at the present time is their importance to national defense. Because the oceans are used by submarines which can roam at will for longer periods than ever before, the charting of ocean depths and currents and the accurate mapping of underwater mountains and canyons are important defensive measures. Also, a precise understanding of the effect of increased levels of irradiation of the oceans, caused by radioactive waste deposits and the use of ships and submarines powered by nuclear energy, will be necessary for our continued safety.

In the years ahead, the study of the ocean may bring rich rewards. The study of marine plant and animal life could lead to ocean harvests that would help to alleviate hunger in certain parts of the world. The world's mineral resources could be increased if economical means were found to recover the manganese, cobalt, nickel, copper, and rare earth metals that are in the ocean. Also, the sharply rising demand for fresh water for industrial and agricultural as well as domestic use may be satisfied by sea water, if more economical desalting techniques are developed. More accurate and long-term weather and climate forecasts may be possible as a result of an increased understanding of the relationship between the atmosphere and the oceans. Eventually, man may even use his knowledge of this relationship to influence the weather. A study of the ocean depths may also help to explain how the world was formed, and how it has altered over past millions of years.

If potential contributions are to be realized, both concentrated and expanded scientific study will be required. The ocean bottom must be mapped; waves,

tides, surface currents, and deep circulation water movements must be charted; the life history of marine plants and animals and their migrations must be understood; and the layers of sediment at the ocean bottom must be studied.

Agencies Engaged in Ocean Research

Both government and private agencies are engaged in ocean research, with government agencies financing most of the work. The Department of the Navy makes the largest contributions--both by financing contract work and by undertaking the research itself. The Office of Naval Research supports extensive programs of basic and applied oceanographic research which are contracted out to private marine laboratories and universities.

The Navy Hydrographic Office (NHO) supplies answers to the innumerable practical problems concerning the oceans. It analyzes oceanographic and meteorological information which it compiles in the form of navigational charts, sailing directions, and weather and iceberg forecasts. This information is distributed to vessels of the Navy and merchant marine and to naval aircraft units, to afford maximum safety in their operations. For these functions, the NHO employs a staff which includes scientists, engineers, and technicians. The Navy also has various other units engaged in ocean study, including the Naval Electronics Laboratory at San Diego, Calif.; the Navy Mine Defense Laboratory at Panama City, Fla.; and the Naval Ordnance Laboratory at White Oak, Md.

The Bureau of Commercial Fisheries of the United States Fish and Wildlife Service, is another Government agency which has staff assigned to ocean study. In addition to conducting studies of marine biological and fisheries resources, it finances some research by other marine laboratories. The determination of the abundance and distribution of fish is one of the most important problems in this field. A related task is to measure and describe the flora and fauna of the oceans, at all depths.

Oceanographer studying ice conditions to chart safe routes to our Artic defense installations

The Coast and Geodetic Survey, one of the oldest Government agencies, started surveying the coasts and harbors of the United States as early as 1807. Currently, the survey operates a few ocean going ships as well as various smaller vessels. Its staff consists of both commissioned officers and civilian personnel. Commissioned officers are generally engineers. Civilian personnel include scientists, engineers, technicians, craftsmen, and many other occupational groups. The Survey produces nautical and aeronautical charts, as well as annual tables of tides and currents. It also makes special studies for both Government and private agencies.

The Coast Guard, too, makes important contributions to the work in this field. It operates the International Ice Patrol and Ocean Rescue Stations and makes oceanographic surveys. The Beach Erosion Board of the Department of the Army's Corps of Engineers makes studies of waves and tides and their effects on the erosion of beaches.

Among the other Government agencies which have a few people assigned to ocean study is the Atomic Energy Commission which is concerned with radioactivity in the ocean resulting from disposal of atomic wastes and the operation of nuclear-powered ships. The Commission finances in other agencies studies of the normal level of radioactivity in the ocean and of the effect of radioactivity on marine life. The Weather Bureau studies the interaction of ocean and atmosphere. The Maritime Administration is concerned with problems of ship design, construction, and operation. The National Science Foundation provides funds for the construction of research vessels, and for fellowships and selected research projects.

Marine laboratories operated by universities and other organizations conduct the largest share of ocean research. They employ about 3,000 persons, approximately half comprise the scientific staff, and many of these hold graduate degrees. The bulk of the funds expended by these laboratories comes from the Federal Government, particularly the Department of the Navy, the Bureau of Commercial Fisheries, and the National Science Foundation. The Rockefeller and Ford Foundations have also supplied funds as have some State Governments.

Altogether, there are about 70 oceanographic laboratories. The two largest--the Scripps Institution of Oceanography at La Jolla, Calif., and the Woods Hole (Mass.) Oceanographic Institution are engaged in all aspects of ocean research. Smaller marine laboratories tend to specialize in only a few research areas. Some laboratories design and produce special instruments for oceanographic research.

Private companies offer a variety of products and services but, at present, account for only a very small number of the employees in the field. A few provide weather information and sailing directions to shipping companies. Several electronic equipment manufacturers design and produce instruments for use in ocean research and undertake research of their own in the development of these instruments. Chemical companies study new and efficient methods for extracting chemicals from sea water, to determine possible alternative sources of supply for chemicals. Petroleum companies study the problems involved in locating Continental Shelf oil resources and in offshore drilling.

Wide Variety of Occupations Required

Although the total number of persons employed in the study of the oceans is small, there is a wide variety of personnel at work in this field. Oceanographers are the principal group of scientists in these activities. They may specialize in such areas as the study of marine plant and animal life, the propagation of sound in the oceans, or the chemistry of the sea. Other scientists engaged in various aspects of ocean study include biologists, geologists, physicists, chemists, and mathematicians. Some of their specializations are geophysics, geochemistry, microbiology, genetics, and radiochemistry.

Other types of scientists are also employed in this work, but in even fewer numbers. Among these are meteorologists and astronomers. Various types of engineers are also employed. The Navy Hydrographic Office and The Coast and Geodetic Survey employ civil engineers and professional cartographers to draft the complex and detailed charts of the oceans. Sanitary engineers are concerned with the problems which may result if higher levels of radiation occur in the oceans, bays, and rivers. Other engineers, employed in various laboratories and agencies, are engaged in designing ships, manned submersibles, and instrumentation.

Personnel employed to aid scientists and engineers in this work include laboratory technicians, engineering aides, and electronic technicians. The Department of the Navy also employs physical science aides. Draftsmen are needed for the large amount of chart and map work re-

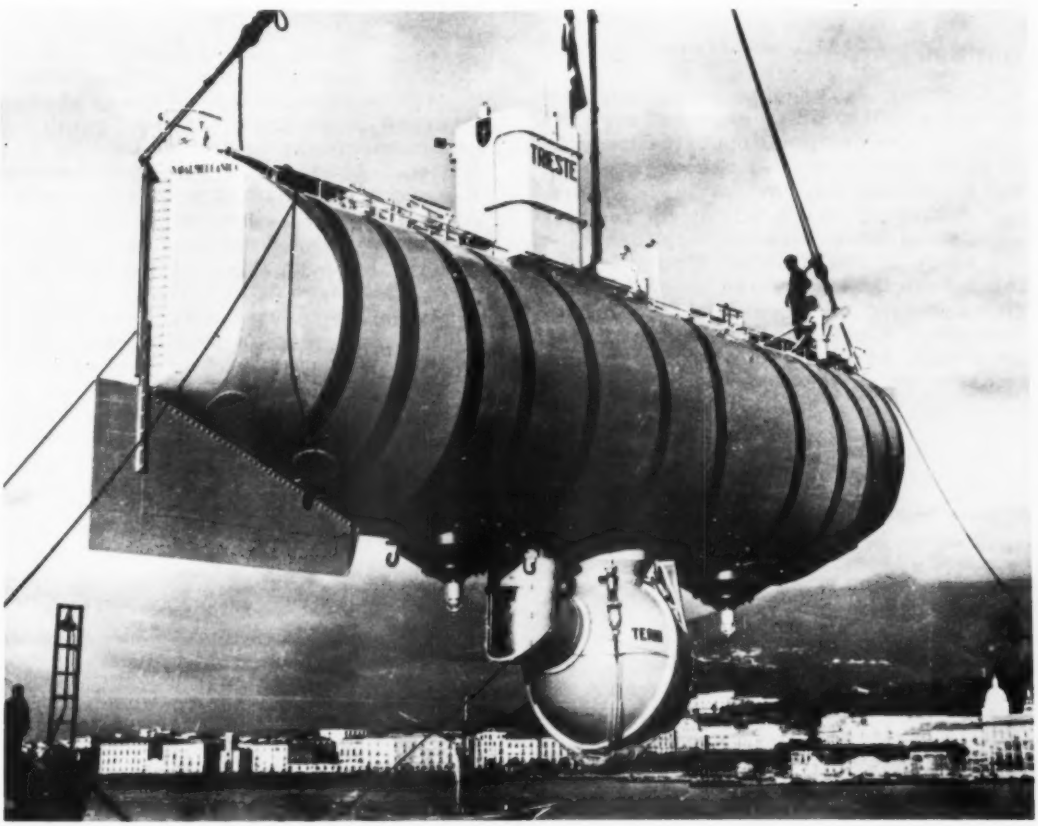
quired, particularly in Government agencies.

Research Facilities

Scientists in ocean study conduct surveys and experiments at sea and on shore, and prepare reports and scientific articles describing the findings. One distinctive characteristic of the field is the physically active role many scientists play in collecting data.

The major facilities for collecting these data are research ships and vessels. Aircraft are also used to observe characteristics of specific areas of the ocean, to pick up data from buoys by means of telemetering equipment, and to direct ship expeditions. Another facility (not often used) is the offshore platform, such as the Texas Tower, which provides opportunities for quiet and extended observations. Scientists may also seek data underwater by diving with aqua-lung gear. One of the major research facilities in ocean study is the manned submersible, such as the bathyscaph, which makes possible both observation and testing miles below the ocean surface. Also, laboratory models of the ocean are sometimes constructed ashore for controlled experiments--for example, wave tanks may be constructed for the study of wave formation and dissipation on model beaches.

Instruments may be dropped from ships to report electronically on the



Lowering bathyscaph "Trieste" from its cradle in Naples Harbor

conditions encountered, or they may be lowered to pick up samples of water, marine life, or sediments. Cameras with lights and flash attachments are extensively used.

Some other instruments commonly used are the magnetrometer which measures the earth's magnetic field; the echo sounder which measures distances to the bottom by means of sound impulses; deep coring devices which obtain samples of the successive layers of ocean bottom; Nansen bottles which obtain samples of water for analysis; special thermometers which measure temperatures at various depths; the heat-flow probe which penetrates the ocean bottom and measures flow of heat from the earth's interior; and the gravimeter which measures small variations in gravity.

Oceanographer retrieving a Nansen Bottle which records water temperatures at desired ocean depths

Outlook

Continued expansion of employment in this small field is expected over the decade. Occupational opportunities will be particularly good for oceanographers, and for biologists, physicists, chemists, and geologists with advanced degrees and specialties directly applicable to the study of the oceans. Opportunities for technicians will also continue to grow as the employment of scientists expands. The rate of growth in the field will, however, depend on the extent to which the programs suggested by study committees are implemented. A very rapid expansion in ocean studies is urged by the report of the Committee on Oceanography established by the National Academy of Sciences-National Research Council and sponsored by the Atomic Energy Commission, the Bureau of Commercial Fisheries, the National Science Foundation, and the Office of Naval Research[1]

[1]See Oceanography, 1960-1970, (Washington, National Academy of Sciences, National Research Council, Washington 1959).

STARTING SALARIES OF CHEMISTS AND CHEMICAL ENGINEERS IN 1959

Starting salaries for chemists and chemical engineers increased 3 percent, on the average, from 1958 to 1959, according to a survey conducted by the American Chemical Society (ACS).[1]

Increases in median salaries were reported for nearly all experienced and for all inexperienced graduates at all degree levels in both chemistry and chemical engineering. The largest increase (3.7 percent) was in the median salary paid to inexperienced graduates with Ph.D. degrees in chemistry. Their median starting salary increased from $675 a month in 1958 to $700 in 1959. The increase for inexperienced holders of master's degrees in chemistry was 2.7 percent--from $511 a month in 1958 to $525 a month in 1959. In chemical engineering, the monthly starting salary for inexperienced graduates with Ph.D.'s was $725 in 1959--an increase of 3.6 percent over the $700 a month recorded for the previous year. (See chart 1 and table 1.)

For inexperienced graduates with B.S. degrees in chemistry, the 1959 median starting salary was $434 a month--less than 1 percent above the 1958 figure. The difference between salary increases for men and those for women, however, was significant. The median starting salary for men was $450 a month in 1959, representing a 2.3-percent increase over the previous year's figure. Salaries for women graduates, on the other hand, remained at about the 1958 level, at $375 a month.

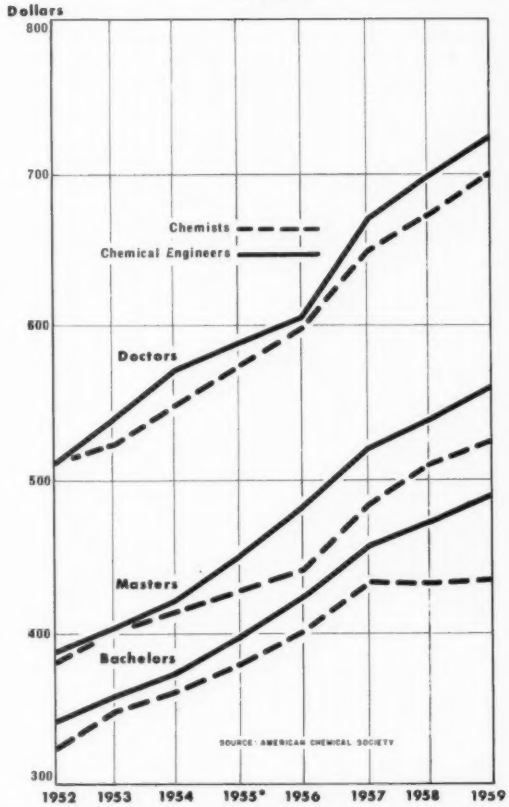
Inexperienced graduates in chemical engineering with the B.S. degree recorded larger gains over 1958, with a median starting salary of $490 a month in 1959. For those completing the 5-year curriculum, the salary was $495.

[1]This information was adapted from an article, Starting Salaries Move Up 3%, by David A.H. Roethel (in Chemical and Engineering News, October 19, 1959, pp. 64-69), in which responses to 2,759 questionnaires were analyzed. This article supplements salary information presented in the 1959 edition of the Occupational Outlook Handbook.

Ranges in Salaries of Inexperienced Graduates

Although the median monthly starting salaries shown in chart 1 indicate the general trends in the earnings of chemists and chemical engineers, the ranges of earnings above and below the median are of equal significance (chart 2). Among inexperienced B.S. chemistry graduates surveyed in 1959, for example, the top-paid 10 percent reported salaries of $500 or more a month, whereas the lowest paid 10 percent earned $315 or less. Most individuals in the lower paid group were in academic positions, where salaries

Median Monthly Starting Salaries of Inexperienced Chemists and Chemical Engineers 1952-59



*No Data Available

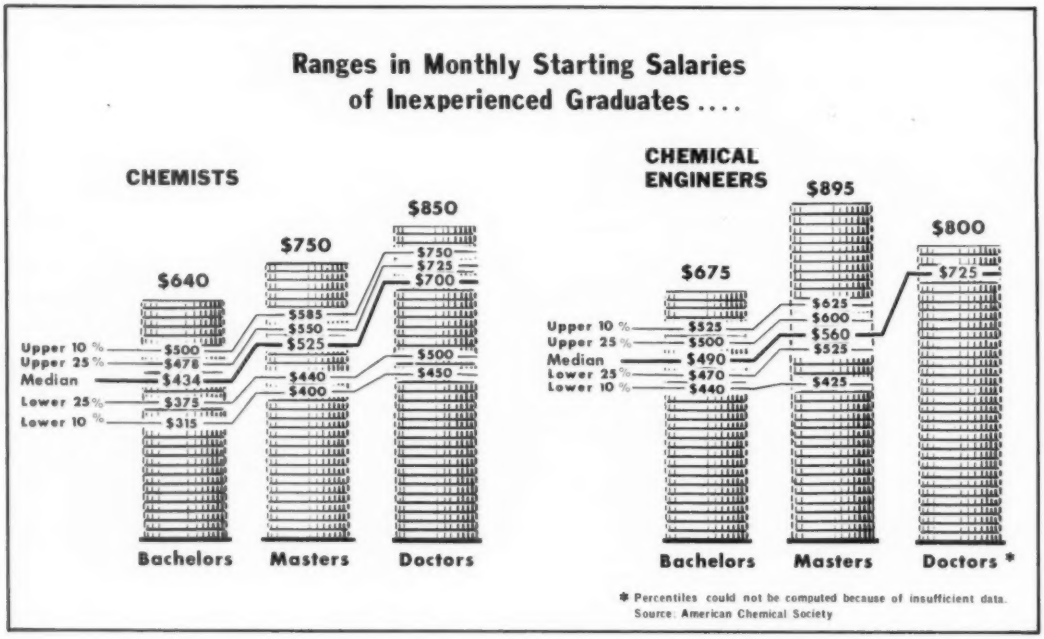
are generally below those paid by other types of employers.

Among inexperienced B.S. chemical engineers, the ranges in salaries paid were considerably less than those for chemists. For example, there was a difference of only $85 between the top salary of the lowest paid 10 percent of these chemical engineers and the bottom salary of the highest paid 10 percent, whereas the corresponding range for

TABLE 1. Median monthly starting salaries of inexperienced chemistry and chemical engineering graduates by college degree, 1956-59

Field and degree level	1956	1957	1958	1959	Percent change 1956 to 1957	Percent change 1957 to 1958	Percent change 1958 to 1959
Chemists:							
Bachelor's degree	$400	$435	$430	$434	8.8	-1.1	0.9
Men	407	440	440	450	8.1	0.0	2.3
Women	375	400	374	375	6.7	-6.5	0.3
Master's degree	443	485	511	525	9.5	5.4	2.7
Doctor's degree	600	650	675	700	8.3	3.8	3.7
Chemical engineers:							
Bachelor's degree	(1)	460	475	490	(1)	3.3	3.2
4-year curriculum	425	460	475	490	8.2	3.3	3.2
5-year curriculum	440	475	490	495	8.0	3.2	1.0
Master's degree	485	525	541	560	8.2	3.0	3.5
Doctor's degree	604	675	700	725	11.8	3.7	3.6

[1]Data not available.
Source: American Chemical Society.



chemists with the bachelor's degree was $185.

Experienced Graduates

Many persons who receive degrees in chemistry and chemical engineering have had previous professional experience. Usually this has been obtained through part-time employment while going to school, temporary summer employment, or cooperative work-study programs.

Higher salaries were usually obtained by the experienced graduates. For example, in 1959 experienced bachelor-degree holders in chemistry had a median starting salary of $475 a month, compared with $434 for those having little or no experience (fewer than 26 weeks of professional work experience). Experienced holders of M.S. and Ph.D. degrees in chemistry had median starting salaries of $550 and $725 a month, compared with $525 and $700 a month for inexperienced M.S. and Ph.D. holders, respectively. Table 2 shows the median monthly starting salaries and median weeks of work experience for experienced chemistry and chemical engineering graduates.

TABLE 2. Median monthly starting salaries of experienced graduates[1] by college degree, 1958 and 1959

Field and degree level	Salary		Median weeks of experience	
	1958	1959	1958	1959
Chemists:				
Bachelor's degrees.	$450	$475	52	52
Master's degrees ..	550	550	104	104
Doctor's degrees...	700	725	104	94
Chemical engineers:				
Bachelor's degrees.[2]	475	500	48	50
Master's degrees...	560	575	52	50
Doctor's degrees...	750	780	150	100

[1]These graduates had worked in the profession 26 or more weeks before receiving their highest degree.
[2]4-year curriculum only.
Source: American Chemical Society.

Graduate Training

Many graduates prefer to continue their training for an advanced degree rather than accept full-time employment. Among chemistry students who have responded to the series of ACS surveys, the proportion planning to take graduate training has increased significantly during the past several years. In 1957, some 15 percent of graduates with a B.S. in chemistry indicated that they were going into graduate study. By 1958, the proportion had risen to 26 percent, and in 1959 the total was nearly 31 percent. Of chemical engineering graduates with B.S. degrees, on the other hand, fewer than 5 percent have gone into graduate study since 1957. These data, together with salary information reported by advanced degree graduates in recent years, point up once again the increasing importance of a graduate degree in chemistry. In general, those chemists and chemical engineers having graduate degrees not only receive better starting salaries but also have the best opportunities for advancement over the long run.

Increased financial aid, in the form of part-time fellowships and assistantships, as well as the paying of higher salaries to holders of graduate degrees, has contributed to the rising numbers going into graduate study in chemistry and chemical engineering. Chemists with B.S. degrees who received this type of help in 1959 had a median monthly stipend of $187; for holders of a master's degree, the median was $200. The corresponding figures for chemical engineers were $200 and $210, respectively. Also, a number of graduates with a Ph.D. in chemistry reported acceptance of postdoctoral fellowships at a median salary of $458 a month.

In addition to part-time fellowships and assistantships, some students help finance their graduate training with summer employment. Holders of the B.S. degree in chemistry, working in the summer, had a median salary of $420 a month and chemical engineers with the B.S. degree had a median monthly salary of $450. For chemical engineers with the M.S. degree, the median monthly salary for summer employment was $575.

Salary Differences by Type of Employer

Industrial employers paid substantially higher salaries to inexperienced graduates in 1959 than did any other type of employer. For example, industrial chemists with the B.S. degree had a median monthly salary of $465--$115 more than those in academic institutions, $91 more than those in government, and $65 more than those in research institutions. (See table 3.) In industrial employment, median salaries for inexperienced chemists with the B.S. degree ranged from $411 in biological and pharmaceutical manufacturing to $493 in the metals industries (including steel). (See table 4.)

Inexperienced chemical engineers' salaries tended to be more uniform than those of inexperienced chemists--both among the various types of employers and among various types of industries.

TABLE 3. Median monthly starting salaries for inexperienced graduates, by type of employer, 1959

Type of employer	Chemists with B.S. degrees	Chemical engineers with B.S. degrees	Chemists with Ph.D. degrees
Academic institution	$350	(2)	$483
Industry	465	$490	715
Government	374	445	(2)
Research institution	400	(2)	625

[1] 4-year curriculum only.
[2] Insufficient data for presentation of a median.
Source: American Chemical Society.

Earnings by Geographic Location

Salary levels varied among the geographic areas. Median salaries for chemists, holding a B.S., for example, ranged from $404 in the West North Central States to $458 in the Mountain States. Among Ph.D. graduates in chemistry, the salary differential among various areas was even more pronounced--a range of $230. Among chemical engineering graduates, salary levels did not seem to be significantly affected by geographic location--in 1959 there was only a $15 spread between the highest and lowest monthly median starting salaries paid to inexperienced B.S. graduates in the various regions.

TABLE 4. Median monthly starting salary of inexperienced chemistry and chemical engineering graduates with B.S. degrees, by industry, 1958 and 1959

Industry	Chemists		Chemical engineers[1]	
	1958	1959	1958	1959
Biological and pharmaceutical	$400	$411	$475	(2)
Chemical	450	465	480	$490
Electronics	(2)	(2)	(2)	500
Food	420	435	470	485
Machinery and equipment	(2)	(2)	470	495
Metals (including steel)	(2)	493	486	495
Missiles and rocketry	(2)	(2)	(2)	490
Paper	(2)	(2)	470	478
Petroleum	465	475	475	495
Plastics	450	475	475	500
Rubber	(2)	(2)	470	483
Transportation	(2)	(2)	(2)	493
Other	433	451	475	480

[1] 4-year curriculum only.
[2] Insufficient data for presentation of a median.
Source: American Chemical Society.

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*This index will cover issues which supplement the 1959 edition of the Occupational Outlook Handbook. For index on previous issues of the Quarterly, see Vol. 3, No. 3, September 1959.

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